

Abstract

A colloidal system of ceramic nanoparticles in a dispersion medium is characterized in that the nanoparticles dispersed in the dispersion medium are distributed by 90% or more portions as unimodal nanoparticles having the same particle size in the dispersion medium, wherein the particle size variation decreases from 50%, related to nanoparticles of 1nm, to 10% for nanoparticles of 100nm, and the atoms and/or ions located in the surface of the nanoparticles are saturated in terms of valence in dependence on the concentration of the nanoparticles in the dispersion medium using a surface modifier such that an energetic balance of the nanoparticles in the dispersion medium is obtained. The presented colloidal system is characterized by a great stability and keeps the unimodal/monomodal nanoparticles homogeneously distributed and suspended in the dispersion medium.